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ARROWHEAD

COMBAT DEVELOPMENTS COMMAND

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Commander's Call

THE "HARDWARE REQUIREMENTS" GAP

The momentum of today's military technology is staggering! It's full of revolutionary implications -- some good, some bad. In any event it is putting lots of pressure on our Army combat developments program and the entire Army structure. New developments in space devices, attended and unattended sensors, terminal guidance, automation, digital communications and other fields are forcing new questions at a rapidly increasing rate. Adoption of these new hardware systems often requires changes in our basic operational and organizational concepts. Such changes in turn demand the most careful prior study and, often, field experimentation.

Concurrently, it is apparent that we are still adjusting to the impact of tactical nuclear weapons which were developed in the late 1950's, and the armed helicopters, fielded in the late 1960's.

Our Army's #1 problem continues to be (and the trend is worsening), "How can we move combat developments ahead of materiel developments?" Obviously, therefore, this problem must be solved. The answers are not so obvious, but I believe the following steps will go far toward closing the gap:

First, we must place more emphasis and reliance on conceptual and analytical studies in three time periods -- the short-range from 1973-1977, the mid-range from 1978-1985 and the long range from 1986-1993. By seeing and comparing all three periods at one time, we will gain a better projection and insight on how best to shape and adopt the new technology. With this improved vision, we can make better investments with our diminishing resources and avoid "lemons", "white elephants", "dread naughts" and being overtaken by events.

Second, we should increase the effectiveness of our field experiments at CDEC, MASSTER and elsewhere. It is not always good enough to design forces by paperwork. However useful, our analytical studies are still limited in many critical respects. Carefully conceived field experiments, in conjunction with conceptual and analytical studies, and hardheaded judgment give us the best answers to the gut questions:

> *What will it do? Do we need it? How well does it work? Can we afford it? What must we give up? What changes are required in doctrine, organization, training and logistics?*

Third, the Army must set a better balance of resources that go into combat developments versus materiel developments. I estimate that for each man hour spent on materiel development it takes about four man hours for conceptual studies and field experiments. Today, it appears that we have the ratio just in reverse!

The most capable Army talents and the most seasoned veterans of CDC are needed to achieve a fully effective combat developments program. Hopefully, the above blueprint in the hands of enlightened professionals will put our Army on the "high-road" and close the hardware requirements gap.

John Norton

JOHN NORTON
Lieutenant General, US Army
Commanding

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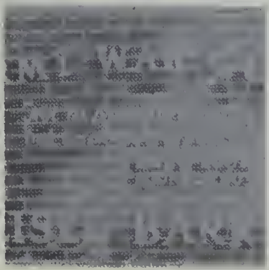

ARROWHEAD

COMBAT DEVELOPMENTS COMMAND

November 1972 No. 45

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The ARROWHEAD is an authorized publication of the US Army Combat Developments Command, Ft. Belvoir, Virginia 22060, under the provisions of AR 360-81. Published monthly by means of photo offset reproduction, circulation is 3600 copies. The views expressed herein are not necessarily those of the Department of the Army. Material can be submitted to the Information Officer. Phone: Autovan 354-3982 or commercial area code 703-664-1455. Drafts are accepted with pictures or sketches whenever available.

Doctrine . . . is a subtle blend of history, experience, conscience,

IS THERE A DOCTRINE IN THE HOUSE?

By Bill Herman

Does this old vaudeville call, slightly paraphrased, actually turn up in Army Combat Developments?

It does, and often.

In fact, it's an urgent question which turns up early in the conceptual process at United States Army Combat Developments Command where the Army's current and future combat effectiveness is determined.

New developments do not simply occur or appear in the Army as isolated actions or events. They start initially as raw ideas of "idea patterns" and are nurtured and guided along until they become broad concepts. This is true of even the smallest individual idea to put a little more firepower in the Soldier's hand, make the rifle squad more effective or provide a new and exotic foolproof, jam-proof automatic-monitoring and self repairing communications systems for the entire Army in the Field.

Why?

Because it is a fact of life at USACDC's Fort Belvoir headquarters and its institutes, groups, and agencies in the field that few materiel or organizational changes can be made in the Army that will not have an effect on the Army's doctrine.

Before going any further let's take the haze off the word "doctrine". "What is doctrine?" people ask. ("Does it make house-calls?" one wag added). "Doctrine" according to dictionary definition is "something that is taught . . . a principle or position or body of principles in a branch of knowledge or system of belief"–US Army doctrine, expressed in field manuals,

and compromise . . .

school and training texts, specifies how the Army should be employed in certain situations and environments. Not the detailed techniques of land warfare (that's training), but the general 'directions-for-use' of a well-organized Army in the field. Doctrine is also a subtle blend of history, experience, conscience and compromise, and ideally should be developed before the Army is equipped and organized. At USACDC the developments process begins with a search for answers to the first of three questions: "How should the Army fight today and in the future?" Then comes "How should it be equipped and organized?"

For this reason, new ideas do not enter the developments process really alone. Ideas appearing at USACDC for evaluation and possible conversion on to a doctrinal, materiel or organizational requirement are identified as belonging to a system or "strain" of ideas that can be fully developed through a series of interim "generations" or follow-ons. In this respect we might say that USACDC prefers to work with "family-tree" ideas which have a developmental geneology and characteristics much like the people who create them, but which are hardy and healthy enough to promise progressive development toward a full maturity some twenty to 25 years later.

There is one more thing. USACDC's mission is to assure that the Army's best and strongest new ideas not only reach maturity, but develop in an orderly manner. This means, however, that new ideas be introduced without danger to our fighting strengths, while the Army remains poised, virile and at its best day-to-day state of combat effectiveness.

Thus the accidental or deliberate authors and foster fathers of new ideas at USACDC must also begin visualizing the precise time-phasing of the ideas into the Army according to certain long range plans and objectives and according to the effect they will have on increasing the Army's ability to fight. In short, the search for new ideas is paralleled by an even more important quest—the search or refinement of tactics to employ the new materiel or organizational ideas.

For this reason, near the very beginning of the combat developments process, early in conceptual ideation, some combat arm and service support experts begin asking questions like: "Is there a doctrine in the house?" "Can this idea be adapted to existing tactical doctrine or must a new doctrine be created?" "Can the Army's over-all plans and force structure for the future accomodate a drastic change in tactical concept should this idea be accepted?"

History has shown that many new "ultimate weapons" never reached the battlefield or appeared in the wrong war because no one asked "Is there a doctrine in the house?" The rifle-barreled musket was available in the Kentucky and Pennsylvania hills longs before it was dramatically "discovered."

The early British and French tanks mounted flank-firing guns—so the tank could straddle the trenches and fire sideways. We later learned that the tanks guns could fire forward-and on the move as well—making it a deadly effective offensive weapons system.

We also learned the hard way that the combination of the tank force closely supported by aircraft is a deadly weapons system when supported by adequate and imaginative tactical doctrine.

TACTICAL DOCTRINE EXPLAINED

Before going any further, it must be pointed out that when we say "tactics" we mean more than the detailed techniques of applying our combat strength on any given battlefield. Like "mobility" which is a composite of many interacting characteristics such as firepower, protection, command control, and communications, "tactical doctrine" must be stated in the same breath with logistical (service support) doctrine. Tactics and logistics are inseparably mated because neither one, alone, can win a campaign, battle or skirmish. Tactics, the management of the intellectual resources needed to plan and conduct operations, cannot succeed without logistics, the management of the "things" with which battles are fought.

Military history has seen the tendency for tactics to overshadow, even pre-empt logistics. It is now clearly apparent that in modern warfare in any dimension or intensity, the effective tactician is half logistician and the logistics commander is now aware that his simplest traffic density chart may be the key to a major battle or the survival of a whole theater Army.

Doctrine helps us get out of the system some of the capabilities built into it by the developer.

They do not wear two hats, they share the same hat called "tactics."

Thus we can no longer say, "This is the doctrine for the combat arms and this is the doctrine for the combat support and service; this will be studied and determined at Fort Leavenworth (CDC Combat Systems Group) and this will be conceived at Fort Lee (CDC Personnel and Logistics Systems Group)." Their interdependence on the future battlefield must be determined now—in the conceptual stages of doctrine development

So when USACDC says "tactical doctrine," we don't infer it includes logistical doctrine—it really does because it is our job to keep the Army aware that combat effectiveness requires us to treat logistics not as a step-brother to tactics but as a twin.

Conceiving and evaluating new combat developments ideas and guiding them through the torturous routes to the user is simple to state but difficult to envision because USACDC creates no tangible end-product. Even where the end result will be an actual item—a new weapon or piece of field gear—put in the hands of a

Soldier in 1975—while it is at USACDC, it doesn't exist! It is still only an intangible concept and its only apparent substance may be a wrinkle of a brow, a slightly glazed look, and a few hasty scratch-notes.

CDC LOOKING FOR GOOD IDEAS

It is a surprise to many that USACDC does not own a drawing board, that we do not use "artist's concepts" and way-out "visualizers." The drawings and blueprinting are left to the engineers and contractors after Department of the Army has accepted our recommendation that the Army can use and needs the development item, system, tactical or organizational concept.

USACDC's principle function, in business-world terms, is "Idea Management" but as one harried staff officer put it, "It's like sculpturing smoke."

Before USACDC puts its signature on a concept to begin the developments cycle, it must soul-search until it's certain the Army actually needs the item or idea and that it assures us an increase in combat effectiveness. The key to assuring the effectiveness of a new idea, which may be years from having tangible form (or even becoming a blue-print), is doctrine—how will it be used on the battlefield in the rapidly diminishing future. It must have a place in the development scheme.

Thus, when we say USACDC has no end-product, we might say it is actually a "no-end" product. We will continually be catching up with our future in technology, adapting our force structure to the anticipated threats and budgets. But in all circumstances and in all time frames, the Army's combat effectiveness and ability to perform its required tasks will depend on the most vital "end-product" of the combat develepement system—tactical doctrine. At USACDC this begins with the most intangible tool of the trade—a new idea—and only picks up headway when we ask:

"Is there a doctrine in the house? If not, find one!"

Changes in the Army's mobility often required volatile changes in the doctrine of employing it to the best effect.

UTTAS- - -SUCCESSOR TO HUEY

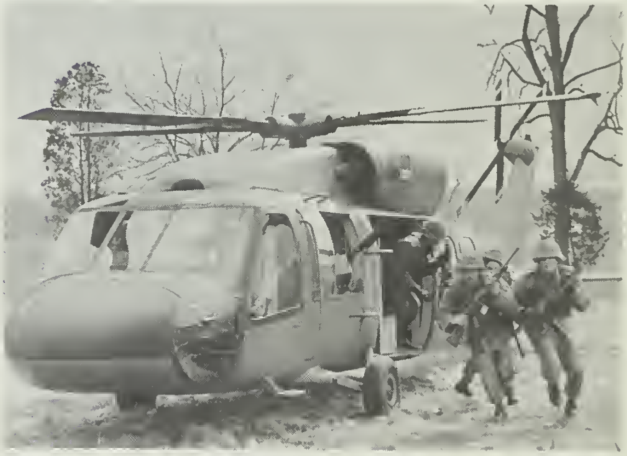
By Mr. Richard Gile

Toward the end of the 1970's, a new utility helicopter is predicted for the Army inventory. Called the Utility Tactical Transport Aircraft System (UTTAS), it will gradually replace the UH-1D and H-series helicopters. The US Army Combat Developments Command and the US Continental Army Command have had a strong influence on the design. A close relationship between personnel of the US Army Combat Developments Command Infantry Agency and the US Infantry School, Fort Benning, Georgia, will bring to fruition several years of planning with the Infantry user foremost in mind.

On 29 August 1972, the Department of the Army announced the award of contracts to two major aircraft manufacturers. These were Sikorsky Aircraft, Division of United Aircraft Corporation, Stratford, Connecticut, and Boeing Helicopter, Philadelphia, Pennsylvania. Each of these firms will build three flying prototype UTTAS for government competitive evaluation which will begin in about three years.

The UTTAS will fulfill the Infantry's need for a more effective airmobile troop and cargo carrier during the 1980's. *It is not simply a replacement for the famed Huey nor is the UTTAS just a squad carrier.* The *expected* capabilities will provide the Infantry with a helicopter that will lift more than twice the payload of a UH–1H under density altitude conditions that exist over most of the earth's surface, with no strain on pilot technique. Of more significance to the Infantry, the UTTAS will lift an entire eleven-man rifle squad of fully equipped combat troops in and out of tight landing zones, and climb out at a rapid rate.

It is the intention of this article to clarify the Infantry requirement for a new utility helicopter rather than to extoll the performance virtues of the helicopter, granted there is a need for exemplary flight characteristics in any future helicopter.



SIKORSKY UTTAS S-70 Mockup

Mr. Gile is currently assigned to the CDC Infantry Agency, Ft. Bragg, N.C.

The Infantry considers the need for a successor to the Huey in terms of mission effectiveness. Commonly, the UTTAS is referred to as a squad carrier. The new helicopter is that, but an examination of the loads that it will carry reveals that it is a squad-plus transporter. The accepted designs provide for a UTTAS that will be only slightly larger that the UH–1H and can accommodate at least eleven troops, fly for better than two hours, and cruise at speeds well in excess of the Huey.

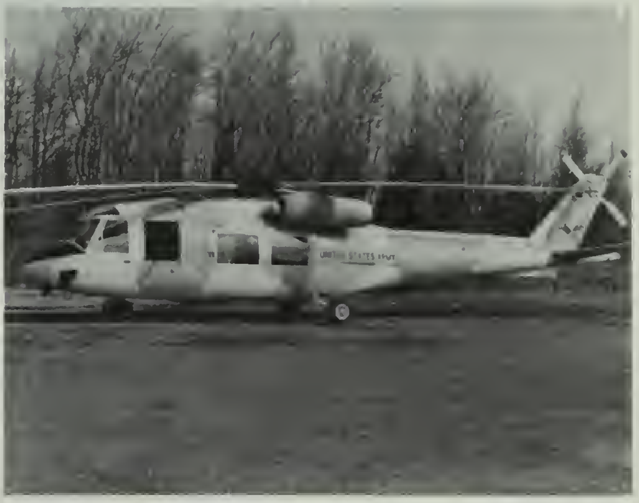
The UTTAS squad carrier is needed to guarantee the lift of eleven troops and their crew-served weapons, such as the 4.2 inch and 81mm mortars, TOW and Dragon antiarmor weapon systems, as well as the surveillance radar sets. To hold this mission equipment, the UTTAS must have a large cargo compartment and, yet, the overall size of the UTTAS must be small enough to load two in a C141 aircraft with minimum disassembly/reassembly during strategic deployment. The door opening size will be larger than UH–1H door to achieve rapid troop and cargo loading and unloading.

A number of door designs for the cargo compartment were under consideration. Doors that slide into the fuselage and step-on ramp doors were considered, but the best design is the conventional Huey slide-back doors.

Within the cargo compartment there is sufficient space to fully accommodate up to eleven troops, crew-served weapons, equipment, and other impedimenta. Also, the eleven troops will be able to exit the aircraft in a few seconds with ease. In addition, the UTTAS floors will be nonskid and virtually damage proof from heavy internal loads.

The real advantage of the cargo compartment lies in improved flexibility which will provide space for the TOW weapons systems and the 4.2 inch mortar. Furthermore, the troop passengers will be seated abreast and back to back, enhancing safer restraint than afforded by longitudinal seating. In the event of a crash, the chance of individual survivability is improved. The UTTAS troop seats will be crash attenuated with a special seat leg design and ceiling attachment which will absorb a great deal of crash impact.

There are other Infantry needs that are being incorporated that should make the UTTAS an even better Infantry carrier. Premier among these is the provision for an integral communication system that will allow the troop commanders to contact each other on an Infantry-dedicated FM radio system. This innovation will provide the commander with more positive communication with his subordinates. He will be able to convey current information on landing zone conditions, the impact of timely intelligence, and last-minute instructions, without dependence on the aviation FM net. The result will be improved tactical operation on arrival in the LZ.



BOEING UTTAS MOCKUP

Rotor blade folding will be another expected improvement over the Huey. This feature permits laagering the UTTAS closer to tree lines and appreciably eases the problem of placing camouflage nets over the helicopter; the tail boom also folds to facilitate camouflage The result will be a UTTAS that will live in the forward area environment.

The advantages in the *proposed* UTTAS cited in this article are considered mandatory to designing a helicopter that will be oriented for the forward area Soldier. The future UTTAS will be born to live in the Infantry environment. None of these features are frills; they are all essential to the new breed of helicopter that will have the future Infantry user foremost in mind. The UTTAS will be an able successor to the Huey and will exceed it in meeting the needs of airmobile infantry.

IF YOU AREN'T COMMUNICATING,

YOU AREN'T LEADING!

By LTC Glen Hargis

"Character, strong conviction, dedication and the will to win." These are some of the leadership traits of today. Are they out of date? What about the future?

The CDC Study, "Man and the 1990 Environment," points out that future leadership "style" will be characterized by interpersonal motivational skills. Leaders will need a working knowledge of human behavior and motivation. Interpersonal relations will become increasingly vital within units. Motivation and pride in organization will be increasingly important to insure high work outputs and concern for the organization resources.

This CDC Study recognizes the dynamic nature of leadership and predicts a change for the future. However, to meet the challenge of the future we must act *now*. In a letter to each officer in the United States Army, General Westmoreland, former Chief of Staff, indicated his desire that there be "more personal involvement of officers in the dialogue of command information and less reliance on written communications in passing instructions and policies through the chain of command."

One of the principles of leadership is "Know your men and look out for their welfare." This can only be done if we are able to communicate with them.

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Interpersonal communication is based on assumptions or expectations of the persons involved. Most communication barriers result from different expectations.

These expectations have three dimensions. They are the "cognitive" or "what-is" dimension; the "value" or "what-should-be" dimension and the motivational dimension or "what-is-desired."

One barrier involving the cognitive dimension is "observation-inference" confusion. A person makes an assumption and proceeds to act as though it were an observation (fact). For example, a driver infers that a right turn signal flashing means just that and finds to his dismay that the other driver is in fact turning left.

Responding to what you think I said, instead of what I said and meant, creates barriers to communication. How do you avoid this barrier? Know when you are inferring and when you are observing. Let the other person know also. In this way, communication failure based on assumution versus fact can be eliminated.

Another cognitive communication barrier is "by-passing." Too often the sender expects that a word means the same thing to everyone, including the receiver. But a word has meaning only in the context in which it is used—time, place, and persons communicating. Meanings are in *people*, not in *words*. Therefore, to preclude or eliminate this barrier, one should be person-minded instead of word-minded. Be sensitive to context, both verbal and situational.

"Leaders will need a working knowledge of human behavior and motivation."

Another problem in interpersonal communication is differentiation-failures. Indiscrimination occurs when you can't differentiate between people and treat them as though they were all the same. We have heard the statement, "Once you've seen one, you've seen them all." This practice will almost always lead to barriers in communication. Look for differences; accept the premise of uniqueness.

We must also acknowledge problems of value differences. Different cultures and groups within cultures have different value patterns. When values are different, we tend to evaluate the other person's values in terms of our own. Barriers arise because we just can't understand how the person could act or believe "like that." When a person in a position departs from the pattern of wants, goals, beliefs and actions we expect should characterize that position, we judge him accordingly.

One way to eliminate these barriers is to gain knowledge of the cultural backgrounds of others Race relations councils and other such groupings are steps in the right direction in search for solutions to "cultural"-gap and "generation"-gap problems. It is important to remember that value differences do not require *agreement,* but *understanding* of another belief or position *is* essential.

Another way to overcome value barriers is for each individual to listen with understanding. Most Army service schools now include effective listening blocks in their Programs of Instruction. But to listen with understanding requires *involvement* with the other person, not merely acquiring facts.

A third dimension of the communication problem is the motivation or "what is desired" dimension. Each individual in a communication situation has needs and goals. To complicate matters, one or both of the individuals may experience internal conflict with those motives. These conflicts usually result in communication problems.

What does one do to eliminate the barrier? First, learn to analyze needs and goals. Attempt to see the problem as the other person sees it. Learn to increase the reward a person receives from the communication process itself. Develop the desire to influence the person with whom you're communicating. Motivation occurs when the other person realizes his goals and needs are fulfilled by talking to you. When ego-defense mechanisms are engaged to save self-esteem, anxiety is the result. A communicative barrier arises instead of discussing what was intended. A defensive climate is caused by attempts to evaluate or control another individual or by appearing either too blasé or too dogmatic. Give support instead of evaluating or controlling.

If we are to increase managerial skills, improve leadership techniques and improve the overall professionalism in the Army, we must begin by emphasizing the teaching and importance of interpersonal communicative skills at all levels in the Army, but particularly in the Army service schools.

There is no reason to cast aside the principles of leadership we've been using. If interpersonal communication skills were taught at our service schools and discussed in local seminars, these principles could be applied with greater insight and the result would be far-reaching.

The Army of the future, the Modern Volunteer Army, will succeed only if our leadership techniques reflect interpersonal communication skills. NOW is the time for innovation. Effective interpersonal communication should become the "lead horse" in our efforts to achieve a viable Modern Volunteer Army.

FOR THE COMMON GOOD

By Colonel John G. Morgan

As a general rule, successful military operations of any kind are a result of good teamwork; a combining of various skills and abilities in such a manner as to extract the greatest sum of the various parts. This truism is probably more apparent in all efforts of the Army Medical Department (AMEDD) than in any other aspect of the Army. Moreover, the activities of the Army Medical team are almost unique, in that those activities not only benefit the immediate recipient of the services provided, but ultimately serve to produce benefits for the common good of all mankind.

In its most succinct form, the mission of the Army Medical Department is usually stated as "to preserve the fighting strength of the Army." This is certainly true as far as it goes, but it represents a gross over-simplification in light of the multi-faceted, complex Army Medical Department which has contributed so much for the well being of all mankind.

The tremendously wide scope of activities necessary to complete fulfillment of that briefly stated mission reaches into every nook and cranny of our civilization, and directly or indirectly touches the lives of every U.S. citizen as well as of many of the other people of the world.

The complex system involved is such that rarely does anything "just happen" to an AMEDD patient. From the moment when an

"The most dramatic and rapid advances in the healing arts have come during periods of war."

injured Soldier is approached by an aidman (or a patient reports into a clinic or hospital), every action taken is the result of years of research, training, experience, and dedicated service on the part of untold numbers of people who represent a wide range of skills and abilities. Even if full application of the team concept to all functions of the AMEDD were not deliberate (and it is), the Department follows and has always, of necessity, followed that method of operations. Some of the team operations are dramatic and exciting and, therefore, are well publicized and highly praised by all segments of society, e.g., the exploits of the world-famous and praiseworthy Institute of Surgical Research at the Brooke Army Medical Center, Fort Sam Houston, Texas, are well known in most of the United States. Likewise, who has not seen at least one television news story showing delivery of a seriously injured patient by military helicopter to the very door of an operating suite of a civilian hospital? Teamwork at its finest!

The U.S. Army Combat Developments Command Medical Service Agency (USACDCMSA) located at historic Fort Sam Houston, Texas, is an integral part of the AMEDD team. It is in a unique position to serve as a focal point for refining ideas and getting them into the AMEDD system. The Agency accomplishes this through its position in the Combat Developments Command system and its direct lines of coordination with the Office of The Surgeon General and other military medical channels. Formed in 1962 when the USACDC was organized, the Medical Service Agency (MSA) is staffed with a wide range of specialties to enable coverage of the full gamut of subjects which comprise the elements of the Army Health Care System. Experienced senior officers are available in the fields of medicine, veterinary medicine, dentistry, nuclear medical effects, medical aviation, medical supply, health care administration, and many various specialized areas of medical plans and operations. Added to these are the additional diverse skills which can be made available as a result of the highly effective AMEDD Center Team which serves as the coordinating element between MSA and the U.S. Army Medical Field Service School, (USAMFSS), also located at Fort Sam Houston, Texas. San Antonio, the historic site of Fort Sam Houston, is itself fast becoming one of the major points in the United States for concentration of medical skills, and the facilities of this community are also fully available to the Medical Service Agency through professional and personal channels of communication. This represents a further illustration of the concept of sharing knowledge for the common good.

"Humanitarianism, although secondary to the primary mission of the AMEDD, . . . is of great importance."

However, the cooperative process extends much farther and deeper within the AMEDD itself than could ever be detected by observation from without the system, and for good reasons. The most significant factor which levies an absolute requirement for a totally integrated team effort at all levels is that common denominator — *the patient.* Although the AMEDD deals in commodities to some extent and in ancillary, or related services also, all efforts are traceable back to the patient. He is a product which requires the best possible treatment *NOW.* He cannot be refrigerated, dehydrated, boxed, shelved, or otherwise stored until a more convenient time nor would we necessarily want to follow such practices even if they were possible. Service to the patient is our overriding goal; only through total dedication to that principle can the AMEDD fulfill the requirements of its mission.

Humanitarianism, although secondary to the primary mission of the AMEDD, is nevertheless a consideration of great importance in performing functions assigned to it.

The late Major General Joseph I. Martin, MC, once stated, while serving as Surgeon of the Fifth U.S. Army during World War II's Italian Campaign, "The useless expenditure of life and suffering is as criminal as murder." That sincere and merciful attitude toward the patient could well have served as the basis for the development and operational guidance of the AMEDD team. A great many people representing a wide variety and intensity of medical, medical-related and/or administrative skills go into the making-up of a successful medical team, and as long as the 'common denominator,' *the patient*, remains the basis for the team's existence, the AMEDD team must be headed by the physician. The doctor/patient relationship is held as the prime consideration at all times. It is from this "eyeball" contact between doctor and patient that the total requirement stems, and the great benefits which have accrued to all mankind through the desire to save life and relieve suffering are all traceable to that direct relationship.

It is unfortunate, but true, that the most dramatic and rapid advances in the healing arts have come during periods of war. Several easily distinguishable factors have bearing on this, but one of the most important, obviously, is the fact that more physicians are working directly with more patients. New developments occur comparatively rapidly and in an environment which fosters accelerated refinement and dissemination. New blood and new ideas are infused into the AMEDD system which itself then becomes a more potent vehicle for the refinement and use of those ideas. In this manner then, new procedures, treatments, systems, etc. which are developed for one particular condition or situation are made available for national, or even world-wide use. As examples, the results obtained and reports relative to the physiology of digestion written by Dr. William Beaumont while serving at a military station remote from civilization are well known to all the world. Likewise, the exploits of Major Walter Reed and his valorous band of volunteers in their successful fight against yellow fever have received wide acclaim. Similar, though less well publicized, medical "breakthroughs" occured during each armed conflict in which the U.S. Army has participated. The benefits of all these accure "to the common good."

Since the end of World War II, the medical profession and the AMEDD, has maintained to a large degree the accelerated developmental pace normally found only during conditions of full-scale war. Comunication skills and capabiities are at an all time peak; the beneficial use of automatic data processing equipment for medical research, information storage and processing, and to assist in the reduction of onerous administrative loads, is being better refined almost daily; and finally, the realization by those who control the allocation of resources of the absoute requirement for continuation of a full scale medical research development and patient treatment team — all have combined to keep the AMEDD moving steadily foward, as a physician-led team, toward the goal of relieving pain and eliminating unnecessary or untimely death.

The USACDC Medical Service Agency is proud to be in the vanguard of this important effort — working with the other members of the AMEDD team — FOR THE COMMON GOOD.

A SHORT HISTORY OF AUDIO-VISUAL SUPPORT

Signal Corps Photo Detachment en route to Manila during the Philippine Insurrection in 1899.

One of the traditional responsibilities of the Signal Corps is known by all old-timers as "photographic services." In the Civil War it was vigorously promoted by the well-known photographer, Matthew Brady. WWI came and passed with the Army's photographic capabilities still uncertain. The result of this uncertainty was that time and technology marched on while photographic planning within the Army remained almost stagnant.

In 1964, after the establishment of the new Assistant Chief of Staff for Comunications-Electronics Office, there continued to be a problem with priorities for the Audio-Visual effort, and difficulty was experienced in keeping the effort viable.

In February 1967, the Office of the Asistant Secretary of Defense, conducted a study on the Audio-Visual data base. It was concluded that each military service fix the overall departmental responsibilities for Audio-Visual functions in one office at the DA level. Accordingly, the Assistant Chief of Staff for Communications-Electronics was given responsibility for the activities within the United States Army. With the upgrading, the Audio-Visual arena experienced a new importance. DA directed that a study be conducted to develop a new Audio-Visual management structure. The final product was the Dr. Joseph H. Kanner Army-Wide Audio-Visual Activity Study (AWAVAS) in March 1969. Even after this study, Audio-Visual activities again took a back seat to other functions due to the priorities of the Vietnam War. The field manuals and technical manuals became outdated. The Army Pictorial Center was deactivated after 25 years of service to the United States Army. This brings us to the present. What is the Army doing now?

GET THE PICTURE?

By Lt. Patrick R. Blair

Audio-visual comunication in the Army is changing. "A revolution is in progress. All around us, at this very moment, an explosion of the application of Audio-visual communications is permeating military affairs, education, information, entertainment and every day life."

This was pointed out by LTG Walter E. Lotz of the NATO Integrated Communications Systems Management Agency in a speech to the 20th Annual Audio-Visual Services Conference in 1967.

Lt. Blair is currently assigned to the CDC Communications–Electronics Agency, Ft. Monmouth, N.J.

In the past, Audio-visual support has suffered from a lack of priorities, effective direction, organization, responsibility, control and operational service support. The requirements had not been adequately documented and specific doctrine for meeting these requirements has not kept pace with other activities within the Army.

But in April of 1971, DA determined that CDC would be the comand responsible for Audio-visual doctrine.

Immediately the combat developers changed

Specialist 4 Sam Rollins operates the TRI Film Inspection and Cleaning Machine at the Ft. Belvoir Audio-Visual Support Center. This machine can inspect and clean a film strip in a matter of minutes.

The Pentagon Cassette Duplicator can make three duplicates of an original tape simultaneously.

the terminology for photographic and/or Audio-visual support. It was evident that this type of support could no longer be classified as a "one-horse" operation; that is, one man shooting combat photos with a small format camera. The whole operation was much larger than anyone has ever imagnied.

In the Army of the seventies the name is to be *VISAUTRONICS.*

This busy acronym covers all the old responsibilities and functions of the by-gone years, as well as a multitude of new capabilities that are results of the technological evolution in equipments, processes, and requirements. Put in the form of a classical equation, visautronics looks something like this:

Visual Medium + Audible Mediums + Communications Electronics Implications = Visautronic Support

As a follow-on action to this DA assignment of the responsibility for Audio-visual doctrine, a comprehensive Audio-visual study plan for A-V support requirements was developed by a joint task force under the guidance of CDC. Priority was given for the immediate rewriting of FM-11-40, Army Pictorial Operations. Both of these new CDC missions were to be accomplished by a 90-day Ad Hoc Committee with one permanent member from the US Army Combat Developments Command Communications-Electronics Agency. The US Continental Army Command also participated along with the US Army Materiel Command, the US Army Audio-visual Agency, and the US Army Strategic Communications Command. With the formation of this committee, visautronics operations were placed in a position of importance. The committee was to be hosted by CDC's Communications-Electronics Agency at Fort Monmouth, New Jersey.

As an interim step to complete modernization, the study plan and the new FM-11-40 will be designed in accordance with current state-of-the-art investigations and operations. Both end products will be designed to guide future studies in the same field.

The new field manual, FM-11-40, will only address Army pictorial operations. Under its new title, Tactical Audio-Visual Doctrine, it will outline the proper management and operation of visautronic support. From the water's edge in the COMM-Z to the division front boundary, visautronic responsibilities and capabilities will be clearly stated.

The Audio-visual study plan will guide the preparation of a visautronic support study for the Army in the Field. It will be used as a basis for A-V doctrine and resources during the 1973-1982 timeframe. The final study will emphasize all areas that are now or will be vital to the success of the Army's mission. Among these vital areas of visautronic support are: television, motion pictures, still photography, sound, graphic illustration and other forms of informational displays. These functions coupled with existing combat surveillance techniques will effectively enhance all mission accomplishments.

The importance of Audio-visual activities to the Army was probably best expressed by General Lotz this way: "The implications of ensuring quality and effectiveness of service, the additional impact of recent experience in Vietnam and the explosive new developments are necessitating a new look at the Army's audio-visual organization, development, services in audio-visual technology and its applications, worldwide."

CDC is taking that new look at Audio-visual support, a look into the future.

WITH A LITTLE BIT

By LTC J. C. Buchman

My grandfather used to say, "If a little bit (of anything) will do a lot of good, a lot will do a helluva lot of good" He practiced what he preached, too! If a sixpenny nail was called for, he would use a tenpenny; a 90-horsepower engine would have run his backyard sawmill, but he used 300 horsepower. In other words, Ole Grandad was a natural proponent of overkill. In our land of plenty, the overkill philosophy has flourished—not only in the civilian sector, but also in the military materiel sector.

We in the military come by our overkill tag honestly, but that doesn't make it right. The overkill this article is concerned with pertains not to weaponry but to the vast inventory of support equipment that I feel we overdevelop in the honest effort to build maximum universality and convenience into each piece of equipment to be adopted.

Much has already been said against overdesigning to meet universal requirements; I think it's the convenience angle that we overdo in designing our equipment. We've gotten so that every piece of equipment is powered to replace manual labor and locomotized to preclude walking or pushing. Consequently, we wind up with requirements for expensive machinery to support even small volume requirements. The result is we place equipment where it is economically unfeasible or we incur delays in lifting loads while we coordinate the repositioning of powered equipment, which always seems to not be where we need it.

A basic example of where we have done it the right way is in the case of jacks for light commercial and military vehicles. Using the basic mechanical advantage of the inclined plane (screw) or the lever (ratchet) and a small amount of muscle, the job of lifting vehicles is accomplished economically and efficiently. Larger vehicles are issued simple hydraulic jacks—again using a basic principle augmented by a small amount of muscle. These devices have performed well for decades. Why can't we at least consider a return to the unadorned machine, powered by man, for that percentage of applications feasible?

An opportunity exists now as we are developing extensive cargo container use in military logistics. These containers must be stuffed and unstuffed all along the lines of communication. Certainly high volume transfer sites will require the power and speed of sophisticated equipment. But just as surely, there will also be many low volume, isolated requirements for stuffing and unstuffing that can effectively be filled with simpler, cheaper devices than forklifts, cranes, and wreckers. Variations of chainfalls, rollers, and winches, for example, should be considered for some of these applications. A key aspect of this consideration should be the marvelous capability of the physically fit American Soldier! Without regressing to bare field expedients, he can accomplish a lot with a little bit!

LTC Buchman is currently assigned to the CDC Transportation Agency, Ft. Eustis, Va.

RIO—A NICE PLACE TO VISIT

Since its inception in December 1967, the Research Industry Office (RIO) of the Combat Developments Command has received 17,947 visits from representatives of industrial, scientific, and academic organizations. RIO, currently headed by Colonel Gregg Henry, has the objective of expanding, strengthening, and enhancing Army/civilian relationships in the exchange of information by every practicable means in meeting the research and industrial requirements of the Army. At present, there are 2278 representatives from 279 companies accredited to RIO.

An integral and essential part of RIO is its Research Industry Documentation Center (RIDC), presently headed by Lt Colonel Daniel H. Pride. Located in a trailer adjacent to the main headquarters building at Fort Belvoir, Va., the center contains approximately 900 objective and requirments documents and additional printouts to assist the researcher in the development of requirements information. The objective of the Center is to provide industry and research and academic representatives with "hard copy" useable information regarding the Army's present and future Materiel Needs from tanks to field rations.

To obtain objective and requirements documents, industry need only express a desire to participate in the research and development program of the Army, obtain the required industrial and facility security clearances, provide evidence of an R&D capability, and justify a need-to-know.

Since its establishment on 15 July 1970, RIDC has provided 5930 copies of objective and requirements documents to industry.

The Center has telephone coverage 24 hours a day, seven days a week in order to expedite the processing of requests for documents. The number is Area Code 703, 664-1615.

AN ARMY BRIEFING SCHOOL???

A Civilian friend of mine, who had to attend an Army briefing recently, refused to believe me when I told him that the Army had a special school for the sole purpose of teaching officers how to give briefings.

"Impossible," he said. "You mean to tell me that they have to *learn* to be that bad."

"Oh yes," I replied. "They don't merely have to learn to be bad. They have to learn to be consistently bad."

"You're kidding."

"No. Listen—you remember all those slides? Well, they spend two weeks down at Fort Quagmire just learning to say the same thing in the slide as in the speech. The top grade down there was given to a Soldier who read his slides word for word."

"Even that wouldn't be so bad," he said. "But do they have to make the *slides* so boring?"

"What about when they stand and mumble into the podium? Is that covered in the course?"

"Consistency," I said. "The Army feels that you really understand a problem if you can organize it into a laundry list. Remember the immortal words of Peanuts. "I'm always interested in anything that will obscure the issues."

"What about when they stand and mumble into the podium? It that covered in the course?"

"No," I said. "That's only taught in the advanced course, along with obfuscation through irrelevant detail and Foreign Languages."

"Foreign languages? Whatever for? Aren't all the briefings in English?"

"Heaven's no," I said. "They need to learn militarese, Pentagonese, and acronyms. Any relationship to English is purely coincidental. Why I've known an expert in the art to give an entire briefing without using a word of English."

"That's criminal. I'm going to write my congressman and demand an investigation."

"You can't do that. It's a matter of national security."

"You mean this information is classified?"

"No," I said, "but if we eliminated the briefing school then the people being briefed would actually understand what was going on and what we could do about it."

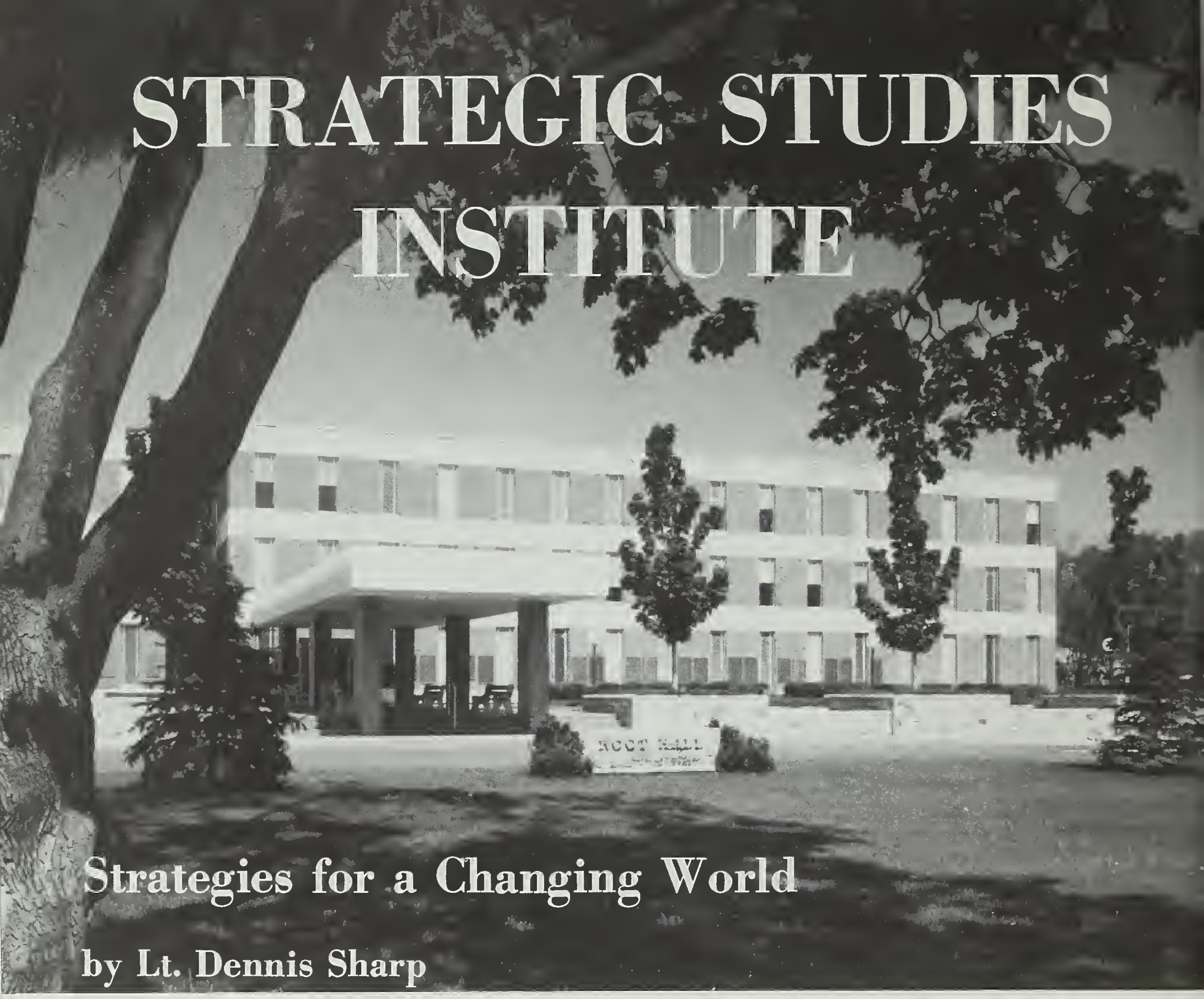
"But what's the matter with that?"

"Don't you understand? That would upset the balance of power. Then Russia would get the jitters and maybe start a nuclear war and the whole world would go up in smoke."

"I see," he said. "I hadn't realized what a sacrifice these men were making for their country."

"That's the problem with people today," I said, "they never think about things like that."

STRATEGIC STUDIES INSTITUTE



Strategies for a Changing World

by Lt. Dennis Sharp

Editor's Note: This is the first of a three-part series on the CDC Strategic Studies Institute.

It's a pleasant drive up Interstate 70S and Highway 81 to Carlisle Barracks, Pennsylvania, home of the Army War College and the Combat Developments Command Strategic Studies Institute (SSI). I asked the guard at the gate where to find SSI. He didn't know. He asked the Lieutenant in the guardhouse. He didn't know either, but he telephoned to find out. "It's in Root Hall," he said. "Just turn left at the next intersection."

Root Hall, home of the SSI, is spacious and modern. I told John Cameron, special project officer at SSI, about the guard.

"It's not our goal to be known by every gate guard in the country," he said. "The people who use our product, The Department of the Army, principally DCSOPS, and others, the people who count, know who we are." Apparently they do. Although SSI is not a household word, in DA circles it carries a lot of prestige. This small organization of thirty-one people works quietly at its job. Its job is to provide mid and long-range strategic planning for the Army.

Colonel Joseph Pizzi is the Deputy Commander. "Someone in the Army," he said, "somewhere, must devote themselves full time to the study of strategic issues. That happens to be us. As far as I know we're the only ones doing this, and it's absolutely essential in my view."

Some of the strategies they're working on right now include a study on the changing posture of Europe, one on strategies for the Pacific-Asia area, one on providing assistance to Allies under the Nixon Doctrine, and the fourth of a series on tactical nuclear operations concepts. These studies are used by top-level decision makers to decide American military and foreign policy.

In the past, SSI has done studies on such subjects as the People's Republic of China, alternative strategies for variant and long-range force postures, and the Army's role in Security Assistance Programs. The list goes on and on.

PRODUCING THE STUDY

To learn how SSI performs a study, we asked several people to lead us through a study step by step. Colonel Pizzi began: "First we get a study directive from our bosses, and we like to think that our customers are our bosses. If the guy who originally commissioned the study is somebody in the Pentagon, he's the guy we're working for. We search out the person who originated the study idea and maintain a close liaison with him. We ask: 'What did you actually mean?' Even though we may have received a ten-page directive, it's possible to go off course. The customer can tell us 'you've missed a point here,' or 'your direction is a little askew, you ought to be going in this direction.' But they don't tell us what to conclude when we get there."

Colonel Richard Mack is a member of a study team on "Pacific-Asian Strategies for Tomorrow." He explained his role this way.

"Once the problem is defined, we sit down and work out a methodology. This gives a time schedule and major areas of study. Then we have some idea of who's going to do the work and what kind of expertise is required. We don't have all the expertise here we need. We've got general backgrounds which can be applied to the military aspects and we have specialists, but in some areas we have varying degrees of expertise. And then we have to be reinforced."

As Colonel Pizzi explained: "We do have ways of augmenting our own in-house capability. One is to borrow people TDY from other agencies, not only in the Army but in the government. Consultants are another way. We haven't been severely restricted and we've been able to secure the few consultants we've needed from time to time. Our needs have been relatively moderate. Another way is by contractual support. We've used all three of these ways in order to augment our own capabilities."

Colonel Mack continued: "When we look at the study plan, we begin thinking about organizing the study. We decide the big broad areas that need to be covered, and draw what we believe to be the requirements for people and organizations to support us."

"For example, we use CONFOR Group (Concepts and Force Design Group) extensively to

JOHN CAMERON: "The people who count . . . know who we are."

produce our environmental analysis. They have the expertise to do this. Then we make our own assessment based on what they have projected. In a sense it's like a rifle range. The environmental analysis becomes our target. The environment sets the limits we work within, and threat is what we have to contend with. These threat projections are based on the geographical area and on the assumptions contained in our study."

"Then we decide on a general methodology, a step-by-step plan on how to attack the problem," he said. "We outline what the final product will look like because the methodology has to tie in ultimately with the format. But we don't set ourselves in concrete. We decide on the general parameters of the study; now we're about ready to present it to the Study Advisory Group organized by the DA customer. These are the overseers of the study, the people who have a particular interest in this area, and we show them what we're going to do. There we get some initial suggestions: 'No, we didn't mean that, look at this,' etc."

"We begin to organize the study team. We tell one individual on the team 'I want you to look at the economic aspect while you're doing basic research on the problem,' for example. Depending on the length of the study this research may take two months, three months. There may be a world of information on the subject."

"In the meantime," he continued, "we write down our thoughts on paper. We need to mesh the study together, so we hold meetings, compare notes, and produce an interim paper. We need a greater blending, so instead of looking at functional areas, we may then look at regional areas. We attend various symposiums. Sometimes we visit the area of the world involved in the study."

"After the first several months we piece together chapters, outlines of chapters, and titles. And we produce a draft that is sent to those interested in the study. We receive their comments, blend them where we can, and correct any errors. The final study may go through several Study Advisory Group meetings and In-Process Reviews before being sent out."

COL. MACK: "We don't have all the expertise here we need. We need to be reinforced."

"Within the study there is an introduction, a chapter on U.S. national interests, an analysis of power alignments in the area based on the environmental input from CONFOR Group, a chapter describing national objectives, and one on national strategies. There is a chapter on military strategies, in particular Army strategy. There is a chapter on Army force considerations, what it will take us to carry out this strategy, one on the implications of the strategy on the U.S., and the conclusions—plus a number of appendices that are tied into the study: science and technology, the environmental threats, politics, economics."

Colonel Robert Reuter, another member of the study team, added, "Part of what we do is to bring together the works of specialists, to integrate into our study the thoughts of people who have spent a lifetime on China, for example. We try to make a blend of specialists and generalists. While we're here each of us is assigned certain areas in which to become proficient. To do that, we read everything we can get our hands on, we attend seminars, we talk to people. We try to be as expert as we can. It's kind of a mini-expertise. Then we put all this research together until we come to our conclusions."

COL. UNGERLEIDER: "It's a two-way street with the War College. They help us and we help them."

AWC AND SSI

SSI is collocated with the Army War College. AWC's Commandant, MG Franklin Davis, Jr., is also the Commander of SSI. Col. Ungerleider and Colonel Pizzi commented on how this relationship affected SSI.

Colonel Ungerleider is the Executive Officer at CDCSSI. "One of the things that's working for us," he said, "is our location, collocated with the Army War College and having access to the tremendous library facilities, and the tremendous array of prestigious guest speakers who are available to the students, but who are also available to sit down with us and help us solve some of our problems. This you can't buy for any amount of money. And it's a two-way street with the War College. We help them in every way we can, we provide course advisors, and we help out as research advisors also."

Colonel Pizzi added: I don't think that there's any place in the United States Army better suited for a locale than here. We have the research facilities of the War College, we have the student body which is a fantastic asset in itself. There simply isn't another place that can give us the academic atmosphere that I think an outfit like ours needs to have. Because we're a satellite of the War College, we don't have to worry about file clerks, drivers, or people to maintain government quarters. We're able to devote most of our energy to doing what we're paid to do."

"We're able to devote most of our energy to doing what we're paid to do."

Everyone, from secretary to Colonel, was proud to be associated with SSI. Instead of the gloom often associated with predicting the future, there seemed to be an enthusiastic approach to solving its problems.

THE INCREASING IMPORTANCE OF SSI

"The prestige and importance of SSI have increased in the past few years," Col. Pizzi said. "It's hard to say why. I think it helped when the CDC conceptual studies were absorbed by other agencies beginning in 1969. It allowed more concentration on the strategic studies. I think the people changes over the past few years have helped. There has been more of an effort to fit round pegs into round holes. It takes an unusual type of person to do this work. We don't have people who grow-up in the Army with an MOS of researcher and studier. And yet, in the Army we do have many people who by *avocation* do a lot of reading, writing, and researching. We spend a lot of effort trying to get more round pegs for the round holes we have because we are different."

"One of the blessings we've had is that we're free to reach our own conclusions. In my association with this organization no one has ever come to us and said 'we need this study to prove this or that.' If that were to be the case, the Institute would lose its reason for existence."

"Obviously we can't do everything. We have a number of limitations. We're limited by numbers. We have a dozen officers and seven professional civilians. Partially because of the numbers, we have a limitation on the diversity of disciplines that are involved. But everything in life is a compromise. If we were completely self-sufficient, with the capability to meet any number of simultaneous demands, the Army would have difficulty in trying to support us. Reduce it to a certain point; the value becomes so marginal as to be worthless. We're somewhere in that middle ground, neither marginally effective nor so fat that we just lumber around. I prefer to think that an Institute such as ours needs to be compact, otherwise, as the organization grows, you get people that do nothing but take in each other's laundry. We have what the commercials aptly call a 'low-overhead operation.' "

"Someone . . . must devote themselves full time to the study of Strategic Issues. That happens to be us."

COL. PIZZI: "We don't have people in the Army with an MOS of researcher and studier."

"We have to be careful that any increase doesn't dilute the product."

WILL SUCCESS SPOIL SSI?

In the civilian world if you do a good job they give you more money. In the Army, they give you more work. Could the success of SSI lead to an overtasking of its resources?

"I think there's a little bit of this," Colonel Ungerleider said, "but so far we haven't been overwhelmed by any particular task we've been given. But there is a danger in this. Whenever there is any talk about increasing the size of the Institute, we have to be careful that the increase doesn't dilute the product. But with commanders like General Davis and Colonel Pizzi, I don't see this happening. They're demanding the best at all times, and they're getting it. But there is this danger, and it's something we need to be aware of."

"One of the benefits of success," John Cameron said, "is that it gives you access that you might not always have. Another is that to the extent that you are successful, and by successful I mean it's recognized that you're able to turn out a well-rounded and convincing document that answers the mail, then the kinds of questions that you're given become more important. The questions we're given are significant, they are important."

CDC's Strategic Studies Institute is doing a good job—an important job—in answering those questions.

Sign at the entrance to the Army War College and CDC Strategic Studies Institute.

Next Month: The Inter-Agency Council. How SSI gets top-level people together to decide Tactical Nuclear Operations Concepts.

NCOs LOOK AT THE INFANTRY SMALL UNIT

As the all-volunteer Army moves closer towards becoming a reality, the organization of the Army prepares for change. The units in the field tomorrow may differ from those one finds in the field today. The units of tomorrow will be smaller, sharper, and more professional.

To prepare for the changes in the organization of the units of the Army, the United States Army Combat Developments Command is looking at the situation from the ground up. In a recent workshop symposium held at the CDC Headquarters at Ft. Belvoir, Va., 17 Non-commissioned officers met to discuss the organization of the Infantry small unit in the Army. The objectives which these combat experienced NCOs undertook were to evaluate the Combat Developments Initiatives Board (CDIB) report relating to the organization of the Infantry Rifle Squad, to discuss and provide recommendations for organizing the Infantry Rifle Squad, Platoon, and Company, and to provide individual evaluations of the current personal defense weapon, the caliber 45 pistol.

The reason for having the NCOs handle the workshop symposium was to draw upon the experience and knowledge of these individuals. The concept, however, is not new to CDC, for this has been done many times in the recent past at other agencies of CDC. There have been symposiums on the Amored Reconnaissance Scout Vehicle, the Main Battle Tank, Aviation trends, and other Army materiel development areas. CDC has discovered that the NCOs add a great deal of expertise in the area of research and development of new materiel and concepts and doctrine. The NCO Small Unit Workshop continued the series of successful NCO symposiums sponsored by CDC.

The NCOs selected to attend this workshop came from units from all over CONUS. Only two of the NCOs present were from CDC units. All others came from organizations that would be affected by any decisions made by CDC regarding the organization of the Infantry small unit.

The workshop, hosted by CDC's Command Sergeant Major Lawrence E. Kennedy, was officially opened by Commanding General LTG John Norton, who challenged the NCOs to seek answers to how the Army should organize for combat. The NCOs then received a briefing from the Director of Organization on the organization process. This was followed by a briefing by the Comptroller on combat development process. Having been familiarized with these two processes in CDC, the NCOs began work on the objectives of the workshop.

The CDIB report presented a good argument for a smaller sized Infantry squad in theory, but the NCOs were skeptical about the practicality of the squad organization as proposed in the report. The NCOs felt that much more testing and studying should be done before any decision on the small Infantry squad is reached. The NCOs felt that fire and maneuver elements were essential to the effectiveness of the Infantry squad. The CDIB called for a two or three man team. The NCOs strongly opposed this because they felt this would take away from the effectiveness of the team.

The NCOs also felt that the CDIB had omitted a significant factor in their proposal for the reduction in the size of the Infantry squad. This factor is the number of men available to join the fight in combat. The morale and confidence of the men, they felt, could be adversely affected by the smaller number of men in the squad. The NCOs felt that the men may have a feeling of inadequacy with the smaller squad.

The CDIB report stated that increased fire power would compensate for the reduction in manpower. However, the NCOs responded that it takes men to hold a hill. It makes no difference how much fire power a unit has if there are not enough men to effectively employ it.

Having responded to the CDIB report, the NCOs began to make their own recommendations regarding the size of the Infantry units. The recommendations for the organization of the squad was done in group sessions. Each NCO provided individual input which was followed by group discussion of each recommendation. During the individual presentations, recommendations for squad size varied from 9 to 11 men. Following the group discussions the agreement was reached that the 11 man team was the optimum squad level size. Their recommendation for the 11 man squad was as follows:

The size of the Infantry small unit will have a bearing on the mobility of the unit.

Squad Leader	E–6	(1)
Team Leader	E–5	(2)
Sr Rifleman	E–4	(2)
Rifleman/Grenadier	E–4	(2)
AW Gunner	E–4	(2)
Rifleman	E–3	(2)

The 11 man squad, according to the NCOs, provides:

a. mutual confidence, morale, and physical relief

b. leadership continuity and backup

c. flexibility in that the squad leader can influence the action with freedom to move from one team to the other.

d. two effective fire teams, individually capable of withstanding limited attrition rates

e. a fire and maneuver capability at squad level

f. ease of control through the employment of fire team leaders

g. balanced teams which facilitate assignment of missions and simplify training

h. the capablity to sustain operations while experiencing reductions in foxhole strength resulting from casualties, emergency leaves, nonresponsive replacement system, etc.

The NCOs also expressed the recommendations that the squad be provided an improved automatic weapon that will have sufficient range (800–1100 meters) to combat the threat and that a radio be provided to enable the squad leader to communicate with his fire teams without being exposed.

As was done with the squad, the organization of the rifle platoon was developed by considering individual recommendations and working towards a common agreement through group discussion. The NCOs recommended that the Infantry Rifle Platoon be organized with a platoon headquarters section consisting of one officer and four enlisted personnel. The breakdown of the platoon headquarters section would look like:

Platoon Leader	Lt	(1)
Platoon Sergeant	E–7	(1)
Asst. Platoon Sgt.	E–6	(1)
RTO	E–4	(2)

The remainder of the platoon would consist of three 11 man rifle squads.

The recommended platoon organization provides:

a. a flexible, highly responsive combat force unencumbered by heavy, oversized equipment currently in the weapons squad, e.g., 90mm Recoilless Rifle

b. an assistant platoon sergeant to perform those duties currently accomplished by the weapons squad leader—in addition he would perform platoon administrative functions and thus allow the platoon sergeant more time for combat responsibilities—

c. two RTOs for handling multi-net responsibilities on a continuing basis.

d. for the centralization at a higher headquarters of the heavier weapons formerly with the weapons squad

e. an organization compatible with light, airmobile, "straight," or mechanized infantry.

The group then divided into three teams to discuss recommendations for the organization of the Infantry Company and Infantry Platoon. There were only slight differences in the three teams' recommendations. These differences consisted mainly of whether to have a mortar section or a combat support section in the company. There was also a slight difference in the number of personnel to be in the company. However, the largest difference was only two enlisted men. All in all, the NCOs had the same general idea of what would be the composition of the ideal Infantry Platoon and Infantry Company.

Evaluation of the caliber 45 pistol was accomplished individually by 13 of the NCOs in the workshop. Each evaluator completed an eight question questionnaire on the caliber 45 pistol. Since no formal discussion was conducted on the weapon, the findings are based entirely on the views of those participating in the evaluation. The majority of the evaluators rated the weapon as satisfactory or better, but more than half of

The size of the Infantry squad was a topic of discussion by the NCOs. What is the proper number of personnel needed to perform the mission most effectively?

the evaluators recommended that the pistol be removed from the Army inventory and replaced by a weapon of a smaller caliber and lighter in weight. All of the evaluators had fired the weapon and 12 of the 13 qualified with it. Regarding the attitude of the Soldier in the field, 70% of the evaluators were of the opinion that the troops desired a replacement for the caliber 45 pistol. However, some felt that this desire for replacement was due to lack of confidence in the weapon as a result of infrequent and improper training not because of faults with the weapon.

The evaluators could only speak from their experience with the weapon, and since there was no group discussion on the weapon, the results of this phase of the workshop are to be considered inconclusive.

One must keep in mind that this NCO workshop was not addressing an on-going CDC doctrinal study. However, NCO workshops are valuable in addressing specific problems or evaluating concepts on the basis of the NCOs personal experiences and feelings for small unit operations, in this case. What the NCOs discussed and recommended may not be the over-riding factors in any reorganization of the Infantry small units. However, one can rest assured that if and when the Infantry small unit is reorganized, the experiences and views of the NCOs may play an important role.

At CDC some of the answers to how the Army will fight and support, be equipped, and be organized are being supplied by experienced NCOs like the ones who attended the CDC Small Unit Workshop.

SAG PROVIDES ON-SITE SUPPORT FOR DATA ANALYSIS

A recent innovation in procedure for the Systems Analysis Group was inaugurated during October of this year. This innovation consisted of furnishing a team of operations analysts and a WANG 720 portable computer to provide on-site support for data analysis to the Army and the Navy Test Directors for the OSDOC II Test. OSDOC is the acronym for Off-Shore Discharge of Containerships. The test is a joint Army-Navy-Marine Corps effort to evaluate various methods of off-loading ships which are designed to carry containers (large standardized boxes) of supplies and equipment for support of military operations ashore. The Military Sealift Command is responsible for the movement of such supplies by water; however, the movement of these supplies over the shore becomes a theater operation because of the participation in such operations by transportation units of the Army and the Army's responsibility for its supplies after coming ashore.

There is a continuing need to expedite the handling and delivery of supplies particularly where inadequate docking facilities and their ancillary equipment are available. This need has been satisfied in part, by the development of standardized containers for bulk cargo, construction of ships especially designed to facilitate the transport of these containers and the development of various types of equipment to offload these containers, transport them to shore and deposit them ashore. The OSDOC II Test was designed to evaluate 13 different combinations of these unloading and transport devices including four different ship-side, three shore-side and three different lighterage devices. These systems were designed by Mr. U. B. Quinby and Mr. R. D. Rogers of the CDC Transportation Agency in coordination with the US Navy. The test of these items of equipment took place in the Chesapeake Bay off Fort Story, Virginia, during the period 6–13 October 1972.

The Systems Analysis Group team of analysts was headed by Mr. Langhorne P. Withers who was assisted by Mr. John A. Gilberto and Mr. Joseph K. Felker. The team received the raw data daily and analyzed the results on-site for delivery to the Test Director. With the preliminary analysis completed, the team returned to the Systems Analysis Group offices at Fort Belvoir where they prepared the preliminary report of analysis over the weekend and submitted it to the Army Project Manager, Colonel Cramer, Monday morning 16 October for his use in his briefing later that week. The Systems Analysis Group will complete the analysis of data and publish by 30 November a Technical Report for use by the Army, Navy and Marine Corps in the preparation of the final report of this joint test.

The type of support for the conduct of tests represents a capability not previously demonstrated within the command; however, it is anticipated that future tests conducted by or for the Combat Developments Command will generate other comparable requirements.

The Point of the Arrow

NOVEMBER QUESTIONS

1. Some of the key advantages of the thermal night sights are: (Select 2)
   A. Completely passive.
   B. Ability to see through light dust or fog.
   C. Easy to positively identify type of tank.
   D. Less expensive than image intensification night sights.

2. Thermal imagery is superior to image intensification in which of the following areas?
   A. Resolution is much better with thermal imagery.
   B. Thermal devices operate in the visible light spectrum.
   C. Thermal imagery needs no ambient light.
   D. Pound for pound, thermal imagery gives greater range capability with present technology.

3. The technological advances in production of electric power by burning hydrocarbon fuels (JP–4, MOGAS, Diesel) and the resulting heat used to produce electric power using differential of temperature on their mocouples is classified as:
   A. The fuel cell process.
   B. Turbo-Alternator process.
   C. Thermoelectric process.
   D. Super Battery process.

4. The development of scatterable mines is critically dependent upon:
   A. The development of self-destruct timers.
   B. The development of influence-type fuzes.
   C. A source of power to provide the energy required for vital functions.
   D. Successful testing of the XM483 155mm artillery projectile.

5. For guidance information, passive homing missles require:
   A. Guidance commands from the launching station.
   B. Energy (RF, laser, etc) generated at a location remote from and reflected from the target.
   C. A signature generated by the target.
   D. A combination of A and B.

OCTOBER ANSWERS

1. Hybrid engines combine the best feature of spark ignition and compression ignition engines. Which of the statements below is correct?
   A. They represent a radical design departure from existing engines.
   B. They depend solely on air throttling for their acceleration.
   C. They will eventually be the propulsion mean for all ground and air vehicles.
   [✓ D.] They can be optimized for either maximum fuel economy or minimum exhaust emissions.

2. Significant advancement in optics and individual vision aids has occurred in the past several years and is of distinct interest to Department of Army and CDC for military application. This advancement relates to:
   A. Hard contact lenses made of glass-base type materials.
   [✓ B.] Soft contact lenses made of non-rigid materials such as silicone rubber.
   C. Hard contact lenses made of rigid and semi-rigid materials such as plastic.
   D. Soft contact lenses made of pliable materials such as plexiglass.

3. Which of the following are advantages to be obtained by the use of soft recoil technology on a cannon system?
   A. Increased mobility.
   B. Increased rate of fire.
   C. Decreased maintenance.
   [✓ D.] All of the above.

4. In nuclear power plants the potential of a breeder reactor is that:
   [✓ A.] It provides both a terminal power source and new fissionable material.
   B. It provides direct current electricity whose voltage can be regulated by breeder rods.
   C. It provides either output power or fissionable material but not both.
   D. It provides alternating current electricity without the need of a commutator.

5. Present technology is capable of developing a thermal night sight scope (less coolant and batteries) for use with a rifle that will weigh less than:
   [✓ A.] four pounds
   B. eight pounds
   C. twelve pounds
   D. twenty pounds

For God and Country

Three hundred and fifty-two years ago a group of English exiles boarded an undistinguished ship called the Mayflower and set sail for the new world. Of course there had been others who had sailed westbound across the North Atlantic before, but these were the first of the true pioneers.

They set out from Europe not with an eye over their shoulders at the land which they had left, intending to return at the first opportunity; they had not been misled by promoters seeking to make a quick profit out of them, careless of what then might be their fate. They were the first cohesive and united body of men, women, and children who sailed for the new land seeking neither a way around it or a richer East, nor quick wealth from the easy exploitation of the precious metals. What then was the motivating factor in the hearts and souls of the men and women who boarded the Mayflower that September day in 1620? What, if it wasn't fame and fortune, made them willing to face the perilous westward voyage, and endure the hardships of the crowded, rocking vessel with its sea-washed decks? It was because in their homeland the light of freedom had been flickering or completely gone out, while in their hearts there glowed a yearning for liberty for themselves and their children. They wanted to live where they could worship God according to their own beliefs and conscience. They sailed for the new land to make a new life in and of that new land, to bring up their children and their children's children there, with a new freedom, a freedom of body, of spirit, and of mind.

We know that when they arrived in this country some sixty-seven days later they were weak from the long crossing. The crowded conditions on board ship and the turbulence of the ocean had added to their misery. But instead of cursing their fate, they signed their famous compact by which they bound themselves to each other for the furtherance of their great project. Half of them died the first winter, but when the time came in the spring for the Mayflower to return to England, not a single survivor sailed with her. Through their own nobility and steadfastness of purpose, their indefatigable determination, abiding and inexhaustible courage, and strong faith in God, the Pilgrims established a settlement that flourished and grew, prospered, spread, and in due course became a nation—a nation that has now been given to us, in trust, to preserve and protect, so that both we and our children might enjoy the freedoms which those Pilgrim Fathers risked all to secure. These are the things we should thank God for during this Thanksgiving Season.

CSM LAWRENCE KENNEDY HEADED FOR KOREA

"My experiences with the Combat Developments Command will always be invaluable to me. I have thoroughly enjoyed my tour of duty, but I am really looking forward to getting back into the field with the troops." With these words, CDC's Command Sergeant Major, Lawrence E. Kennedy, prepared for his new assignment as the Command Sergeant Major of the 2nd. Infantry Division in Korea. When CSM Kennedy turns over the reins of the top enlisted man in CDC to SGM Hal Hulett from CDEC, he will end his two year tour of duty.

As Command Sergeant Major, Kennedy has spent a great deal of his time "on the road", going out to the various posts where CDC units are located. Through his guidance, the role of the Noncommissioned Officer in CDC, and perhaps the Army, has been changed. NCO symposia on new equipment and ideas for the Army of the future were held at many of the CDC agencies while CSM Kennedy was with CDC. CSM Kennedy has strived to improve the role of the enlisted personnel in the combat developments process. The success of the symposia is evidence that his efforts were not in vain.

CSM Kennedy has been an active part of the United States Army since 1940, when he began his service as a member of the 83rd. Horse Drawn Artillery Regiment at Fort Benning, Ga. Since then, he has served in assignments in all of the combat arms branches of the Army. His assignments have taken him from Hawaii to Viet Nam. His many years of service have been spent in almost all phases of the Army.

Among the many decorations CSM Kennedy wears are the Legion of Merit with Oak Leaf Cluster, the Bronze Star with V Device and two Oak Leaf Clusters, the Air Medal with 34 Oak Leaf Clusters, and the Army Commendation Medal with two Oak Leaf Clusters. CSM Kennedy also wears the Senior Parachutist Badge and the Combat Infantryman's Badge.

Speaking on behalf of the entire Command, the *Arrowhead* says "thank you" for a job well done, and best of luck in your new assignment, *"Old Soldier!"*

Commanding General	**LTG John Norton**
Director, Command Presentations	**COL George H. Hallanan, Jr.**
Information Officer	**LTC Gerald D. Hill, Jr.**
Editor	**LT Robert H. Gregory**
Production Editor	**LT Gary R. Steimer**

Correction—Issue No. 43, page 30, title should have read, "Enemy Capabilities vs Intentions in Combat Intelligence Estimates."

Starting with the top of the seal, there is a circle with 13 stars and a ring of light in gold. This is called the "Glory", for it is the Glory of God symbolizing that the spiritual is above the material. The constellation of the 13 stars denotes that the US has taken its place among the nations of the world. The stars in the clouds form the Hebraic star, and some say the "Glory" is the Biblical cloud appearing above the tabernacle of the people of Isreal.

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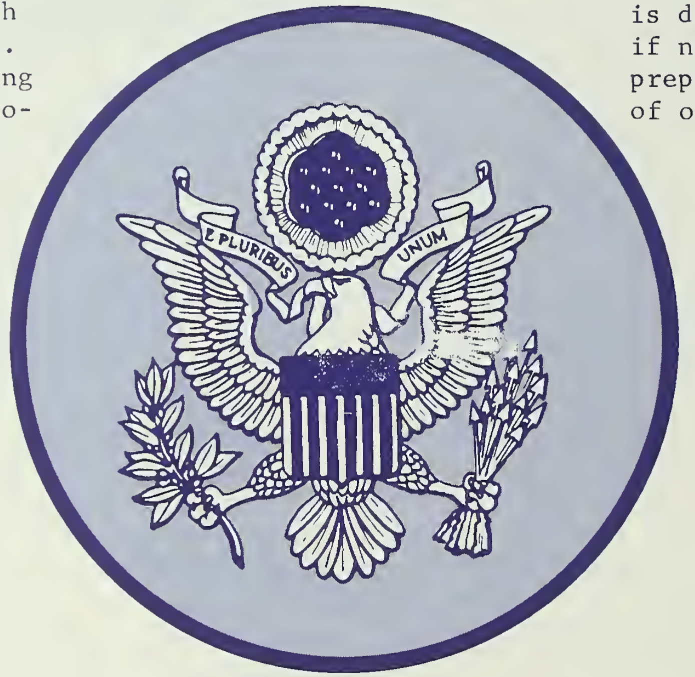
FLARE

The shield or coat of arms in front of the eagle's breast represents the political concept of representative government. The top of the shield in blue represents Congress, free elections, representative democracy and justice. The vertical 13 stripes denote the original and basic concept of a united country of separate states to form the United States.

Emblematic that we are a peace loving nation, the right talon of the eagle holds 13 green olive leaves with 13 berries. The olive branch has come to mean peace. The eagle is also facing towards the right or towards peace.

To defend our rights, we find in the left talon a bundle of 13 arrows which are of the American Indian origin. The United States is dedicated to peace, but, if necessary, we are also prepared for the defense of our country.



The motto in the beak of the eagle, E Pluribus Unum, has 13 letters and is the Latin for 'out of many one'. Out of the many states we are one nation.

The only time the theme of 13 is not used is in the tail feathers, which number nine. This represents the rudder of the state or the judiciary system. Through the years the nine feathers have come to represent the nine supreme court justices.